

					OLB	EIP										EIP	PXI						
					제어기 연결 케이블																		
라벨정보					con1					con2													
Sensor/Actuator Component(HMC)					icon-micro-168			Icon-A			Icon-B-1			Icon-B-2					옵션				
no.	LAVEL	채널 이름	제어기 커넥터	Pin	CON#	행#	열#	N	행#	열#	N	행#	열#	8					AWG	색상	twist no	Twist 종류	
1	Lambda_VG2	Lambda sensor virtual ground2	A	A80	A	1	C											24					
2	Lambda_VN2	Lambda sensor voltage nernst2	A	A101	A	1	D											24					
3	Lambda_CP2	Lambda sensor current pump2	A	A100	A	1	E											24					
4	Lambda_VG1	Lambda sensor virtual ground1	A	A38	A	1	F											24					
5	Lambda_VN1	Lambda sensor voltage nernst1	A	A37	A	3	A											24					
6	Lambda_CP1	Lambda sensor current pump1	A	A59	A	3	B											24					
10	AFO_8	AFO_08			A	3	C											24			27	twist wire+	
12	AFO_9	AFO_07			A	3	D											24			28	twist wire+	
14	AFO_10	AFO_06			A	3	E											24			29	twist wire+	
16	AFO_11	AFO_05			A	3	F											24			30	twist wire+	
9	AFO_GND_8	AFO_GND_08			A	4	C											24			27	twist wire-	
11	AFO_GND_9	AFO_GND_07			A	4	D											24			28	twist wire-	
13	AFO_GND_10	AFO_GND_06			A	4	E											24			29	twist wire-	
15	AFO_GND_11	AFO_GND_05			A	4	F											24			30	twist wire-	
18	AFO_12	AFO_04			A	5	A											24			31	twist wire+	
20	AFO_13	AFO_03			A	5	B											24			32	twist wire+	
22	AFO_14	AFO_02			A	5	C											24			33	twist wire+	
24	AFO_15	AFO_01			A	5	D											24			34	twist wire+	
26	Air_Tmp_SIG	Air temp signal(NTC)	A	A28	A	5	E											24					
28	Air_Flow_GND	Air flow sensor ground	A	A26	A	5	F											24					
17	AFO_GND_12	AFO_GND_04			A	6	A											24			31	twist wire-	
19	AFO_GND_13	AFO_GND_03			A	6	B											24			32	twist wire-	
21	AFO_GND_14	AFO_GND_02			A	6	C											24			33	twist wire-	
23	AFO_GND_15	AFO_GND_01			A	6	D											24			34	twist wire-	
25	Cruise_CTR_SIG	Cruise control activator button signal	K	K77	A	6	E											24					
27	Cruise_CTR_GND	Cruise control Ground	K	K34	A	6	F											24					
30	ACCEL_SIG2	Accel.pedal signal2	K	K09	A	7	A											24					
32	ACCEL_GND2	Accel.pedal ground2	K	K08	A	7	B											24					
34	ACCEL_SIG1	Accel.pedal signal1	K	K42	A	7	C											24					
36	ACCEL_GND1	Accel.pedal ground1	K	K07	A	7	D											24					
38	A/C_PRES_SIG	A/con pressure tranducer signal	K	K43	A	7	E											24					
40	A/C_PRES_GND	A/con pressure tranducer ground	K	K54	A	7	F											24					
29	CoolantTmp_SIG	Coolant temp sensor signal	A	A52	A	8	A											24					
31	CoolantTmp_GND	Coolant temp sensor ground	A	A16	A	8	B											24					
33	Charge_Air_Tmp_SIG	Charge air cooler temp. sensor signal	K	K25	A	8	C											24					
35	Charge_Air_Tmp_GND	Charge air cooler temp. sensor ground	K	K34	A	8	D											24					
37	BOOST_PRES_SIG	Boost pressures sensor signal	A	A93	A	8	E											24					
39	BOOST_PRES_GND	Boost pressures sensor ground	A	A17	A	8	F											24					
42	Exhaust_Gas_SIG(T5)	Exhaust gas temp. sensor signal(T5)	K	K60	A	9	A											24					
44	Exhaust_Gas_GND	Exhaust gas temp. sensor ground	K	K33	A	9	B											24					
46	Exhaust_Gas_SIG(T4)	Exhaust gas temp. sensor signal(T4)	K	K41	A	9	C											24					
48	Exhaust_Gas_GND	Exhaust gas temp. sensor ground	K	K33	A	9	D											24					
50	EGR_TMP_SIG	EGR cooler temp sensor signal	A	A47	A	9	E											24					
52	EGR_TMP_GND	EGR cooler temp sensor ground	A	A16	A	9	F											24					
41	P3_SIG	P3 sensor signal	A	A70	A	10	A											24					
43	P3_GND	P3 sensor ground	A	A05	A	10	B											24					
45	Oil_Tmp	Oil temp sensor(NTC)	A	A31	A	10	C											24					
47	Oil_PRES_GND	Oil pressure sensor ground	A	A05	A	10	D											24					
49	Oil_PRES_SIG	Oil Pressure sensor signal	A	A06	A	10	E											24					
51	Oil_PRES_GND	Oil pressure sensor ground	A	A05	A	10	F											24					
54	DIF_PRES_SIG	Differential press.sensor signal	A	A68	A	11	A											24					
56	DIF_PRES_GND	Differential press.sensor ground	A	A81	A	11	B											24					
58	SP_AO_06	spare AO-06			A	11	C											24					
60	AGND	A_GND			A	11	D											24					

					제어기 연결 케이블													
라벨정보					con1			con2										
Sensor/Actuator Component(HMC)					icon-micro-168			Icon-A			Icon-B-1			Icon-B-2	옵선			
no.	LABEL	채널 이름	제어기 커넥터	Pin	CON#	행#	열#	N	행#	열#	N	행#	열#	8	AWG	색상	twist no	Twist 종류
62	SP_AO_05	spare AO-05			A	11	E								24			
64	AGND	A_GND			A	11	F								24			
53	Fuel_TMP_SIG	Fuel temp sensor signal	A	A73	A	12	A								24			
55	Fuel_TMP_GND	Fuel temp sensor ground	A	A10	A	12	B								24			
57	SP_AO_04	spare AO-04			A	12	C								24			
59	AGND	A_GND			A	12	D								24			
61	SP_AO_03	spare AO-03			A	12	E								24			
63	AGND	A_GND			A	12	F								24			
66	Vacuum_SIG	Vacuum sensor signal	K	K76	A	13	A								24			
68	Vacuum_GND	Vacuum sensor ground	K	K54	A	13	B								24			
70	RAIL_PRES_SIG	Rail press sensor signal	A	A49	A	13	C								24			
72	RAIL_PRES_GND	Rail press sensor ground	A	A18	A	13	D								24			
65	SP_AO_02	spare AO-02			A	14	A								24			
67	AGND	A_GND			A	14	B								24			
69	SP_AO_01	spare AO-01			A	14	C								24			
71	AGND	A_GND			A	14	D								24			
73	DGND	D_GND	K	K04	A	14	E								24			
74	DGND	D_GND			A	14	F								24			
76	NTR_SW(MT)	Neutral switch(MT only)	A	A54	B	1	A								24			
78	ISG_INH_SW	Input ISG inhibitor switch	K	K28	B	1	B								24			
80	Clutch_SW	Clutch switch	K	K51	B	1	C								24			
82	BRK_Lamp_SW_SIG	Brake Lamp switch signal	K	K67	B	1	D								24			
84	AT_REC_ISG	Automatic recognition ISG	K	K31	B	1	E								24			
86	A/C_ON_SIG	A/C on signal	K	K65	B	1	F								24			
75	Start_SW_IN_SIG	Start Switch Input Signal	K	K27	B	2	A								24			
77	Max_BLOW_SW_IN	Max blower switch input	K	K10	B	2	B								24			
79	HD_Lamp_IN	Head lamp dim input	K	K68	B	2	C								24			
81	BRK_SW_SIG	Brake switch signal	K	K11	B	2	D								24			
83	BLOW_SW_IN	Blower switch input	K	K52	B	2	E								24			
85	AT_REC_ESP/FTCS	Automatic recognition ESP/FTCS	K	K35	B	2	F								24			
90	SP_FO_02	spare PWM0-02			B	3	C								24			
92	Vehicle_SPD_SIG	Vehicle speed signal	K	K85	B	3	D								24			
94	VGT_PWM1	Electric VGT PWM In	A	A83	B	3	E								24			
96	SP_DO_02	spare DO-02			B	3	F								24			
87	DGND	D_GND	K	K04	B	4	A								24			
88	DGND	D_GND	A	A26	B	4	B								24			
89	SP_FO_03	spare PWM0-03			B	4	C								24			
91	SP_FO_01	spare PWM0-01			B	4	D								24			
93	Glow_Time_FB_SIG	Glow time feedback signal	K	K45	B	4	E								24			
95	Air_Flow_SIG	Air flow sensor signal	A	A96	B	4	F								24			
98	WTR_Fuel_SNS	Water in fuel sensor	K	K84	B	5	A								24			
100	Thermo_SW	Thermo switch	K	K46	B	5	B								24			
104	SP_DI_04	spare DI_04			B	5	E								24			
106	FAN_H_RLY	FAN High relay	K	K74	B	5	F								24			
97	SP_DO_01	spare DO-01			B	6	A								24			
99	Wiper_P_IN	Wiper motor "p" input	K	K50	B	6	B								24			
101	DGND	D_GND	K	K04	B	6	C								24			
102	DGND	D_GND	K	K04	B	6	D								24			
103	SP_DI_05	spare DI_05			B	6	E								24			
105	SP_DI_03	spare DI_03			B	6	F								24			
108	SYS_PWR_RLY	System Power relay측정	K	K89	B	7	A								24			
111	Start_RLY_L	Start relay Low side	K	K71	B	7	B								24			
113	Fuel_Pump_RLY	Electrical Fuel pump relay	K	K57	B	7	C								24			
115	A/C_comp_RLY	A/Con comp relay	K	K36	B	7	D								24			
107	FAN_L_RLY	FAN Low relay	K	K19	B	8	A								24			
110	Start_RLY_H	Start relay High side	K	K87	B	8	B								24			
112	Fuel_CNSP_SIG	Fuel consumption signal	K	K55	B	8	C								24			

					제어기 연결 케이블													
라벨정보					con1					con2								
Sensor/Actuator Component(HMC)					icon-micro-168			Icon-A			Icon-B-1			Icon-B-2	옵션			
no.	LABEL	채널 이름	제어기 커넥터	Pin	CON#	행#	열#	N	행#	열#	N	행#	열#	8	AWG	색상	twist no	Twist 종류
114	AUX_HEAT_RLY	Auxiliary heating relay	K	K90	B	8	D								24			
116	DGND	D_GND	K	K04	B	8	E								24			
117	DGND	D_GND	K	K04	B	8	E								24			
118	DGND	D_GND	K	K04	B	8	F								24			
119	DGND	D_GND	K	K04	B	8	F								24			
121	FAN_L_RLY	FAN Low relay	K	K19	B	9	A								24			
125	VSA_M_MINUS	Variable swirl actuator motor minus	A	A64	B	9	B								24			
129	ACV_M_MINUS	Non-smart ACV motor minus	A	A86	B	9	C								24			
131	ENG_SPD_SIG	Engine speed signal	K	K73	B	9	D								24			
134	EGR_M_PLUS	EGR motor plus	A	A22	B	9	E								24			8-1twist pair
137	SP_DI_06	spare_DI_06			B	9	F								24			
120	REF_FREQ	reference frequency	A	A36	B	10	A								24			
123	VSA_M_PLUS	Variable swirl actuator motor plus	A	A65	B	10	B								24			
127	ACV_M_PLUS	Non-smart ACV motor plus	A	A85	B	10	C								24			
130	Glow_Plug_OUT_SIG	Glow plug output signal(PWM)	K	K91	B	10	D								24			
132	VGT_FB	Electric VGT Feedback	A	A55	B	10	E								24			8-2twist pair
136	EGR_M_MINUS	EGR motor minus	A	A23	B	10	F								24			
145	SP_FO_06	spare_PWMO-06			B	13	C								24			
147	SP_FO_04	spare_PWMO-04			B	13	D								24			
144	SP_FO_07	spare_PWMO-07			B	13	E								24			
146	SP_FO_05	spare_PWMO-05			B	13	F								24			
149	SP_FL_01	spare_PWM1_01			B	14	C								24			
148	SP_FL_02	spare_PWM1_02			B	14	E								24			
156	CAM_Hall	TDC sensor signal-Hall	A	A99				1	A	1					24		101	1-1섀드 twist pair wire
157	CAM_Hall_GND	TDC sensor signal-Hall_Gnd	A	A89				2	A	2					24		101	1-2섀드 twist pair wire
158	CAM_VS	TDC sensor signal-VS	A	A99				3	B	1					24		102	2-1섀드 twist pair wire
159	CAM_VS_GND	TDC sensor signal-Gnd-VS	A	A89				4	B	2					24		102	2-2섀드 twist pair wire
160	CNK_Hall	Engine speed sensor signal plus-CNK-Hall	A	A90				5	C	1					24		103	3-1섀드 twist pair wire
161	CNK_Hall_GND	Engine speed sensor signal minus-CNK-Hall	A	A91				6	C	2					24		103	3-2섀드 twist pair wire
162	CNK_Hall_SHD	Engine speed sensor shield	A	A68				7	D	1					24		103	3-3섀드 gnd
163	CNK_VS	Engine speed sensor signal plus-CNK-VS	A	A90				8	E	1					24		104	4-1섀드 twist pair wire
164	CNK_VS_GND	Engine speed sensor signal minus-CNK-VS	A	A91				9	E	2					24		104	4-2섀드 twist pair wire
165	CNK_VS_SHD	Engine speed sensor shield	A	A68				10	F	1					24		104	4-3섀드 gnd
166	CAN1H	CAN1 High	K	K64				11	A	3					24	흰색	23	twist wire+
167	CAN1L	CAN1 Low	K	K81				12	A	4					24	검정	23	twist wire-
168	CAN2H	CAN2 High	K	K62				13	B	3					24	흰색	24	twist wire+
169	CAN2L	CAN2 Low	K	K79				14	B	4					24	검정	24	twist wire-
170	CAN2H-R	CAN2 High(W/O-R)	K	K63				15	C	3					24	흰색	25	twist wire+
171	CAN2L-R	CAN2 Low(W/O-R)	K	K80				16	C	4					24	검정	25	twist wire-
172	CAN3H	CAN3 High						17	D	3					24	흰색	26	twist wire+
173	CAN3L	CAN3 Low						18	D	4					24	검정	26	twist wire-
174	LIN_SPY	LIN power	K	K03				19	E	1					24	빨강		
175	LIN_GND	LIN ground	K	K01				20	E	2					24	검정		
176	LIN	LIN(Alternator, Battery sensor, Oil level sensor)	K	K78				21	F	1					24	노랑		
177	VB	BAT+(2.5)	K	K03				22	A	5					24		9	twist wire+
178	PGND	Power GND	K	K01				23	A	6					24		10	twist wire-
179	BATT	Battery Plus permanent	K	K75				24	B	5					24		10	twist wire+
180	PGND	Power GND	K	K01				25	B	6					24		9	twist wire-
181	TERM15	Terminal 15	K	K53				26	C	5					24		11	twist wire+
182	PGND	Power GND	K	K02				27	C	6					24		11	twist wire-
183	SP_AI_01	spare AI-01						28	A	7					24		12	twist wire+
184	AGND	A_GND						29	A	8					24		12	twist wire-
185	SP_AI_02	spare AI-02						30	B	7					24		13	twist wire+
186	AGND	A_GND						31	B	8					24		13	twist wire-
109	SYS_PWR_RLY	System Power relay	K	K89				32	C	7					24			
187	SP	SPARE						33	C	8					24			
188	SP	SPARE						34	D	7					24			

					제어기 연결 케이블														
라벨정보					con1		con2												
Sensor/Actuator Component(HMC)					icon-micro-168			Icon-A			Icon-B-1			Icon-B-2		옵선			
no.	LABEL	채널 이름	제어기 커넥터	Pin	CON#	행#	열#	N	행#	열#	N	행#	열#	8	AWG	색상	twist no	Twist 종류	
189	SP	SPARE						35	D	8								24	
190	SP	SPARE						36	E	7								24	
191	SP	SPARE						37	E	8								24	
192	INJ_L_A	Injector lowside cyl. No.A(1.25)	A	A45							1	A	2					18	
193	INJ_L_B	Injector lowside cyl. No.B(1.25)	A	A46							2	B	2					18	
194	INJ_L_C	Injector lowside cyl. No.C(1.25)	A	A24							3	C	2					18	
195	INJ_L_D	Injector lowside cyl. No.D(1.25)	A	A25							4	D	2					18	
196	INJ_H_A	Injector highside cyl. No.A(1.25) in	A	A66							5	A	1				19	twist wire+	
197	INJ_H_B	Injector highside cyl. No.B(1.25) in	A	A67							6	B	1				20	twist wire+	
198	INJ_H_C	Injector highside cyl. No.C(1.25) in	A	A87							7	C	1				21	twist wire+	
199	INJ_H_D	Injector highside cyl. No.D(1.25) in	A	A88							8	D	1				22	twist wire+	
154	LAMBDA_H1	Lambda sensor heating1	A	A01							9	F	5					24	
155	VB	BAT+(2.5)	K	K06							10	F	6					18	
151	LAMBDA_H2	Lambda sensor heating2	A	A02							11	G	5					18	
152	VB	BAT+(2.5)	K	K06							12	G	6					24	
200	SP_1	SPARE									13	E	1					18	
201	SP_2	SPARE									14	E	2					18	
202	SP_3	SPARE									15	F	1					18	
204	SP_4	SPARE									16	F	2					18	
203	SP_5	SPARE									17	G	1					18	
205	SP_6	SPARE									18	G	2					18	
135	EGR_M_MINUS	EGR motor minus	A	A23							19	A	4				105	5-1섀드 twist pair wire	
133	EGR_M_PLUS	EGR motor plus	A	A22							20	A	3				105	5-2섀드 twist pair wire	
207	EGR_GND	EGR position feedback ground	A	A102							21	B	4				35	twist wire-	
209	EGR_SIG	EGR position feedback signal	A	A07							22	C	3				35	twist wire+	
210	EGR_SPY	EGR position feedback supply	A	A13							23	B	3					18	
128	ACV_M_MINUS	Non-smart ACV motor minus	A	A86							24	E	4				106	6-1섀드 twist pair wire	
126	ACV_M_PLUS	Non-smart ACV motor plus	A	A85							25	E	3				106	6-2섀드 twist pair wire	
212	ACV_GND	Non-smart ACV position feedback ground	A	A60							26	D	4				36	twist wire-	
214	ACV_SIG	Non-smart ACV position feedback signal	A	A94							27	C	4				36	twist wire+	
215	ACV_SPY	Non-smart ACV position feedback supply	A	A35							28	D	3					18	
124	VSA_M_MINUS	Variable swirl actuator motor minus	A	A64							29	F	4				107	7-1섀드 twist pair wire	
122	VSA_M_PLUS	Variable swirl actuator motor plus	A	A65							30	F	3				107	7-2섀드 twist pair wire	
218	VSA_GND	VSA position feedback ground	A	A39							31	G	4				37	twist wire-	
220	VSA_SIG	VSA position feedback signal	A	A92							32	H	3				37	twist wire+	
221	VSA_SPY	VSA position feedback supply	A	A14							33	G	3					18	
223	OIL_PUMP_SOL	Continuous press controlled oil pmp sol.valve	A	A40							34	A	5				14	twist wire+	
232	VB	BAT+(2.5)	K	K03							35	A	6				16	twist wire-	
227	EGR_COOL_SOL	EGR cooling bypass	A	A105							36	B	5				15	twist wire+	
237	VB	BAT+(2.5)	K	K03							37	B	6				18	twist wire+	
231	FUEL_METER_SOL	Fuel metering unit	A	A03							38	C	5				16	twist wire+	
240	VB	BAT+(2.5)	K	K03							39	C	6				18	twist wire-	
235	RAIL_PRES_SOL	Rail pressure control valve	A	A04							40	D	5				17	twist wire+	
224	VB	BAT+(2.5)	K	K03							41	D	6				14	twist wire-	
236	WGT_VACCUM_SOL	WGT vaccum modulator	A	A20							42	E	5				17	twist wire-	
228	VB	BAT+(2.5)	K	K03							43	E	6				15	twist wire-	
242	BATT	SMPS 12V +(F)												9				14	
243	VB	BAT+(2.5)	K	K03										10				14	
244	VB	BAT+(2.5)	K	K06										11				14	
245	VB	BAT+(2.5)	K	K05										12				14	
246	PGND	BAT-(2.5)	K	K01										13				14	
247	PGND	BAT-(2.5)	K	K04										14				14	
248	PGND	BAT-(2.5)	K	K02										15				14	